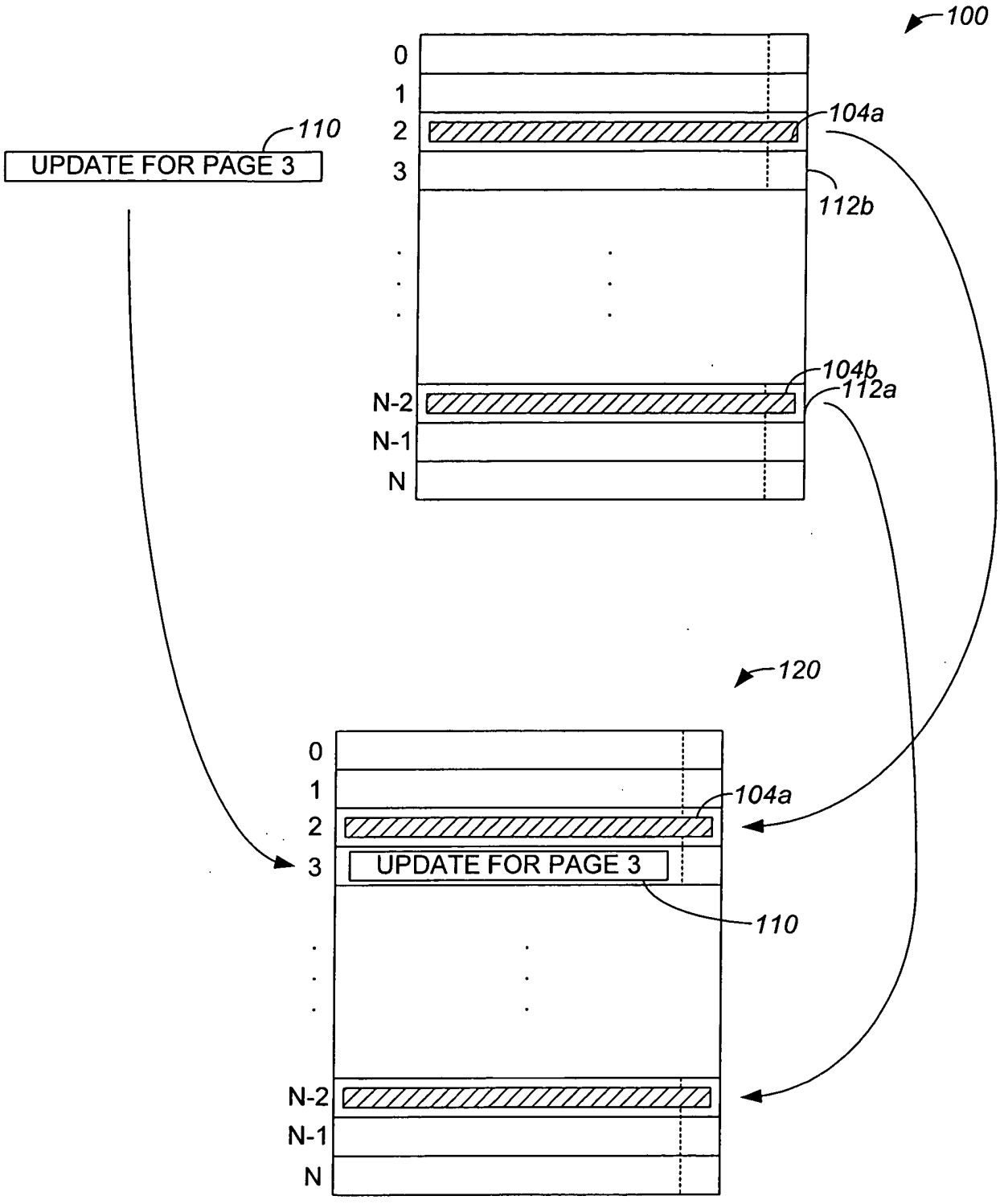
100
0
1
2
3
110
UPDATE FOR PAGE 3
104a
112b
104b
112a
N-2
N-1
N
120
0
1
2
3
UPDATE FOR PAGE 3
104a
110
N-2
N-1
N

Fig. 1

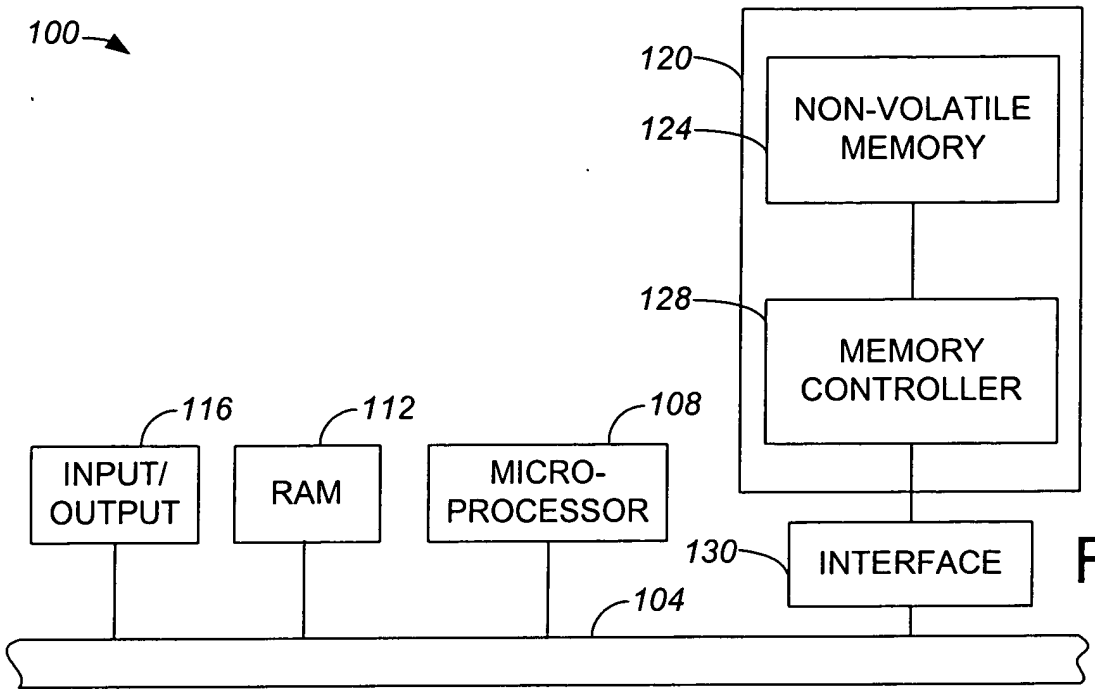
100
120
NON-VOLATILE MEMORY
124
128
MEMORY CONTROLLER
116
112
108
INPUT/ OUTPUT
RAM
MICRO-PROCESSOR
130
INTERFACE
104

Fig. 2a

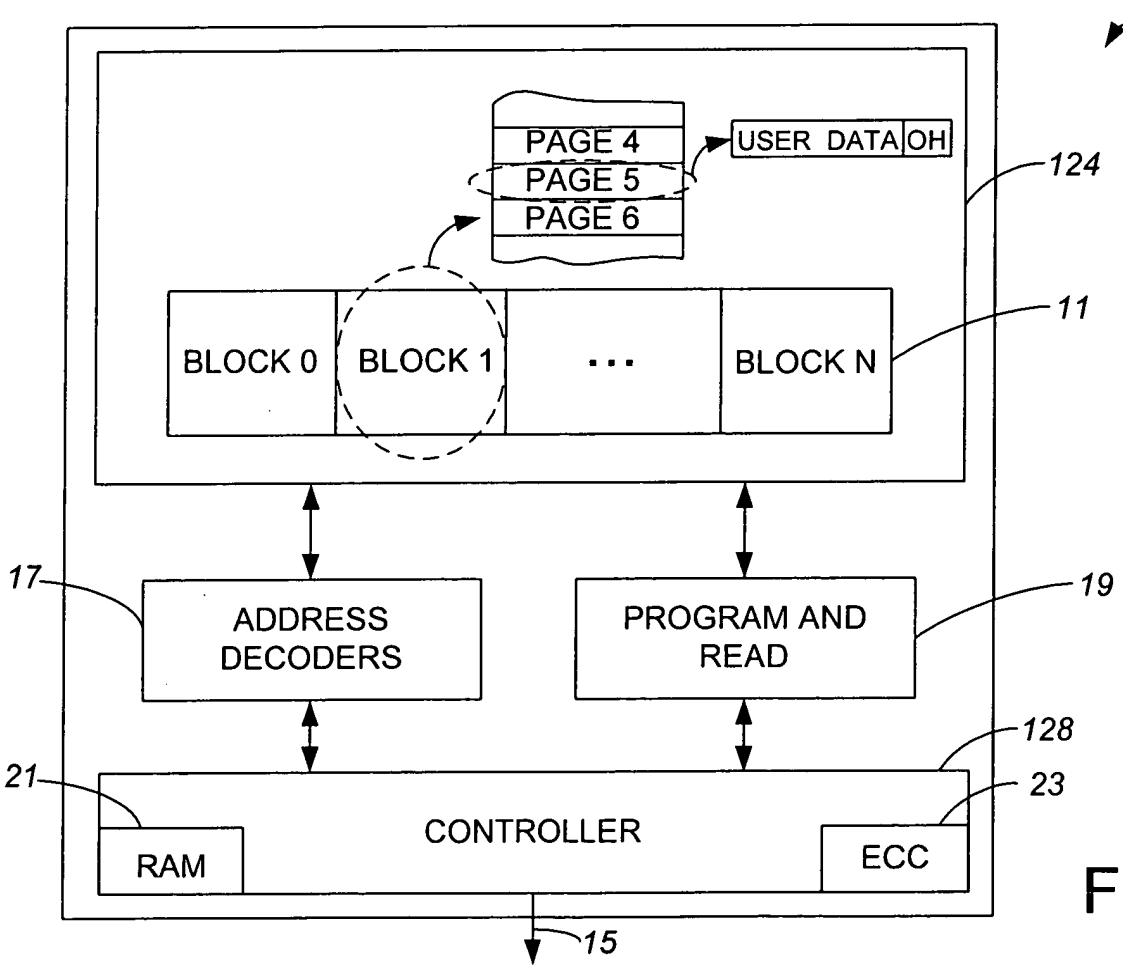
120
PAGE 4
PAGE 5
PAGE 6
USER DATA
OH
124
BLOCK 0
BLOCK 1
...
BLOCK N
11
17
ADDRESS DECODERS
PROGRAM AND READ
19
128
21
23
RAM
CONTROLLER
ECC
15

Fig. 2b

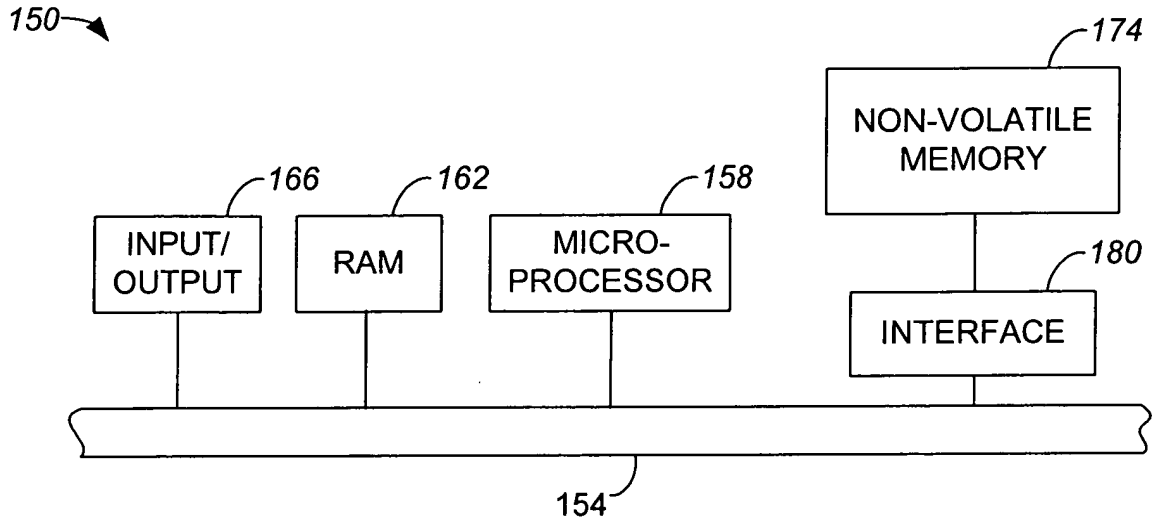
150
174
NON-VOLATILE MEMORY
166
162
158
INPUT/ OUTPUT
RAM
MICRO-PROCESSOR
180
INTERFACE
154

Fig. 2c

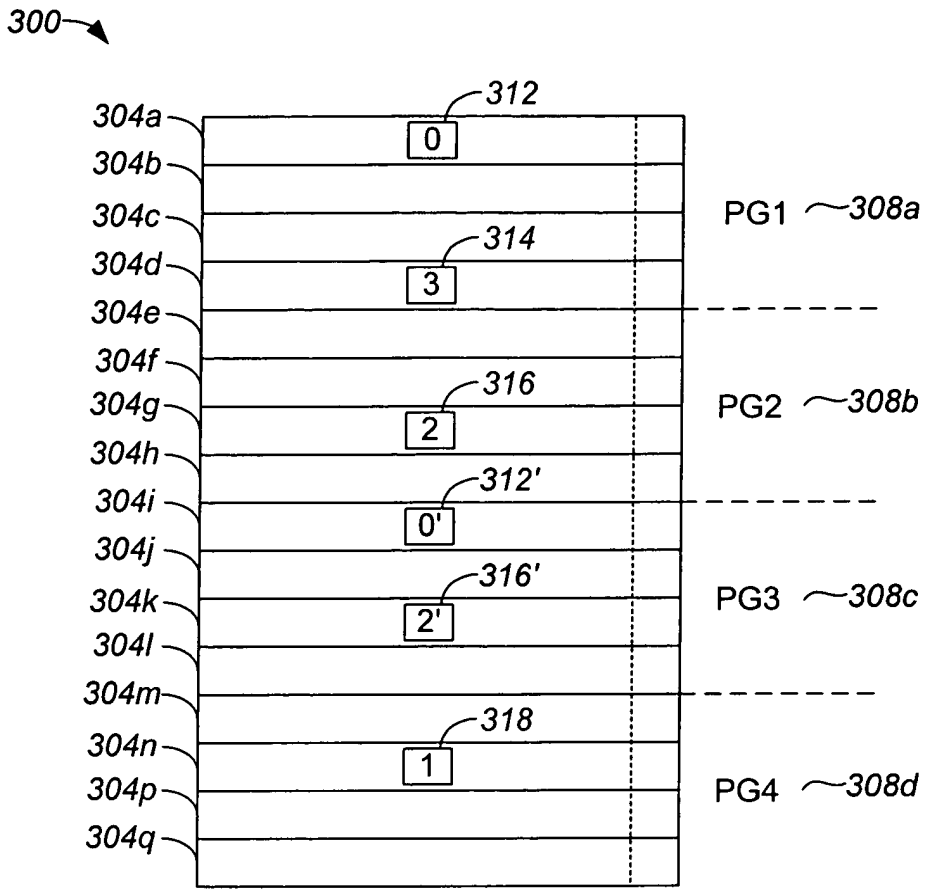
300
312
304a
0
304b
304c
PG1
308a
314
304d
3
304e
304f
316
304g
PG2
308b
2
304h
312'
304i
0'
304j
316'
304k
PG3
308c
2'
304l
304m
318
304n
1
304p
PG4
308d
304q

Fig. 3

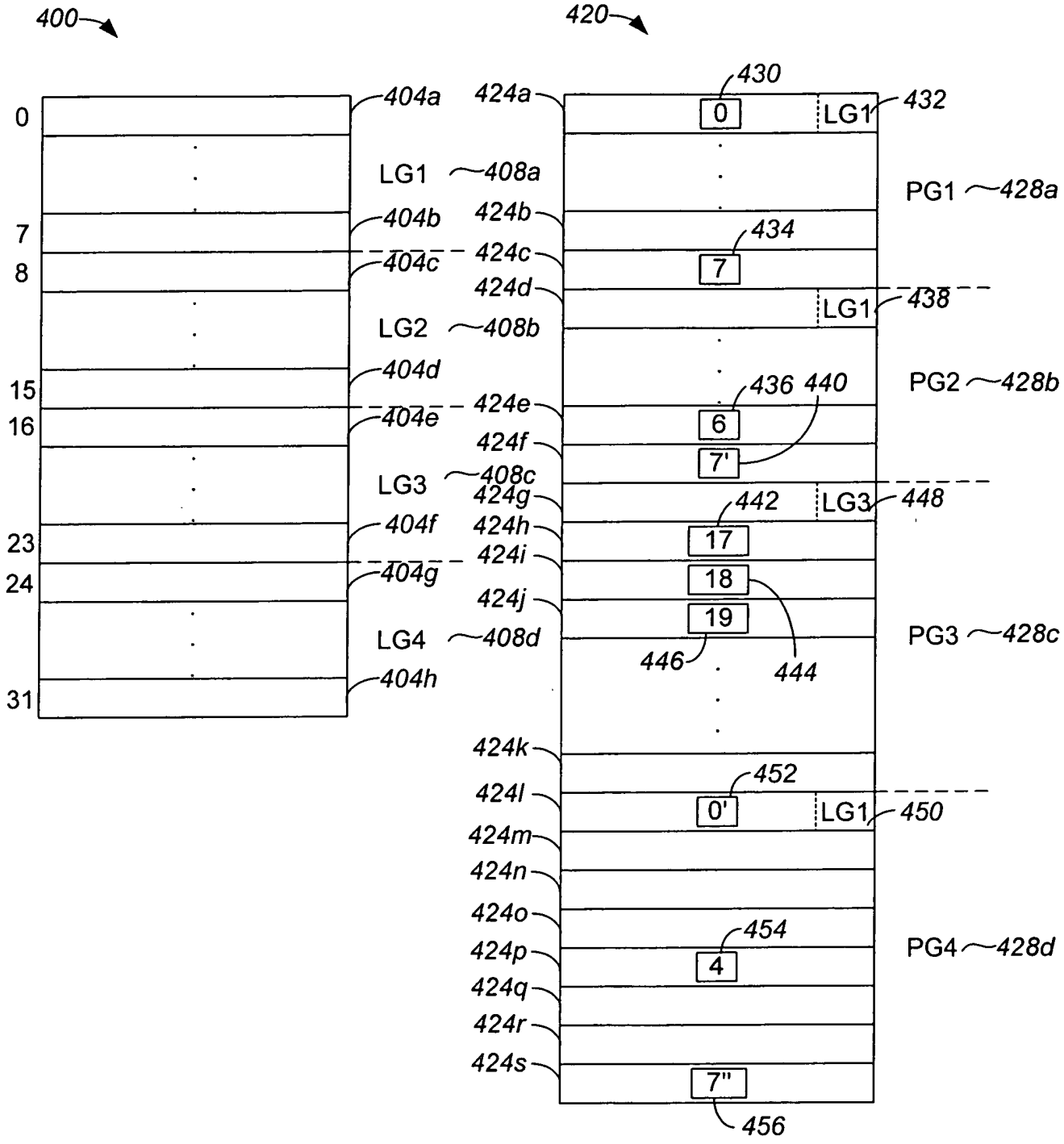
400
420
0
7
8
15
16
23
24
31
404a
LG1
408a
404b
404c
LG2
408b
404d
404e
LG3
408c
404f
404g
LG4
408d
404h
424a
424b
424c
424d
424e
424f
424g
424h
424i
424j
424k
424l
424m
424n
424o
424p
424q
424r
424s
430
0
LG1
432
PG1
428a
434
7
LG1
438
436
440
PG2
428b
6
7'
LG3
448
442
17
18
19
446
444
PG3
428c
452
0'
LG1
450
454
4
PG4
428d
7"
456

Fig. 4a

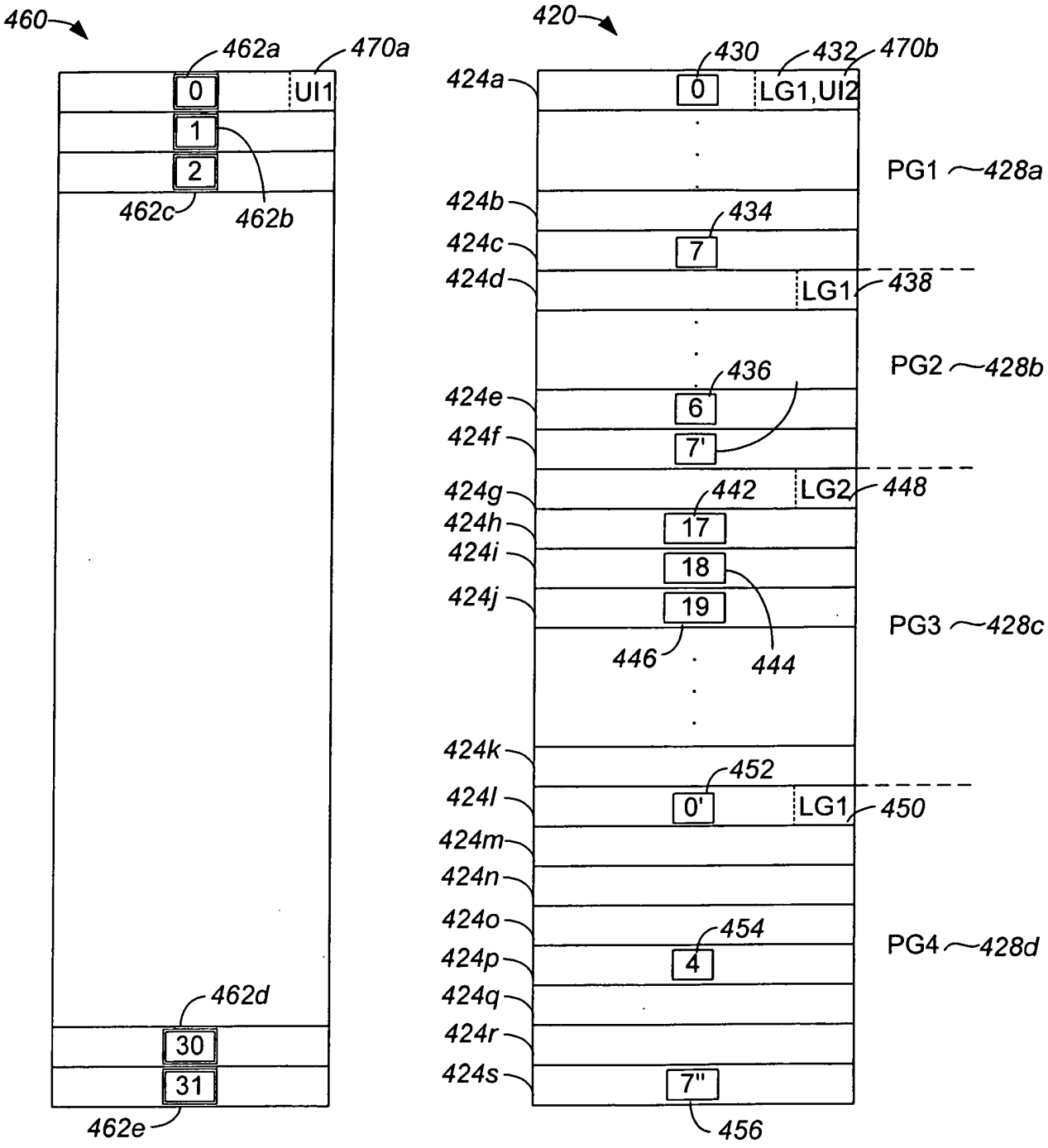
460
462a
470a
0
UI1
1
2
462c
462b
462d
30
31
462e
420
430
432
470b
424a
0
LG1,UI2
PG1
428a
424b
434
424c
7
424d
LG1
438
PG2
428b
436
424e
6
424f
7'
424g
442
LG2
448
424h
17
424i
18
424j
19
PG3
428c
446
444
424k
452
424l
0'
LG1
450
424m
424n
424o
454
PG4
428d
424p
4
424q
424r
424s
7"
456

Fig. 4b

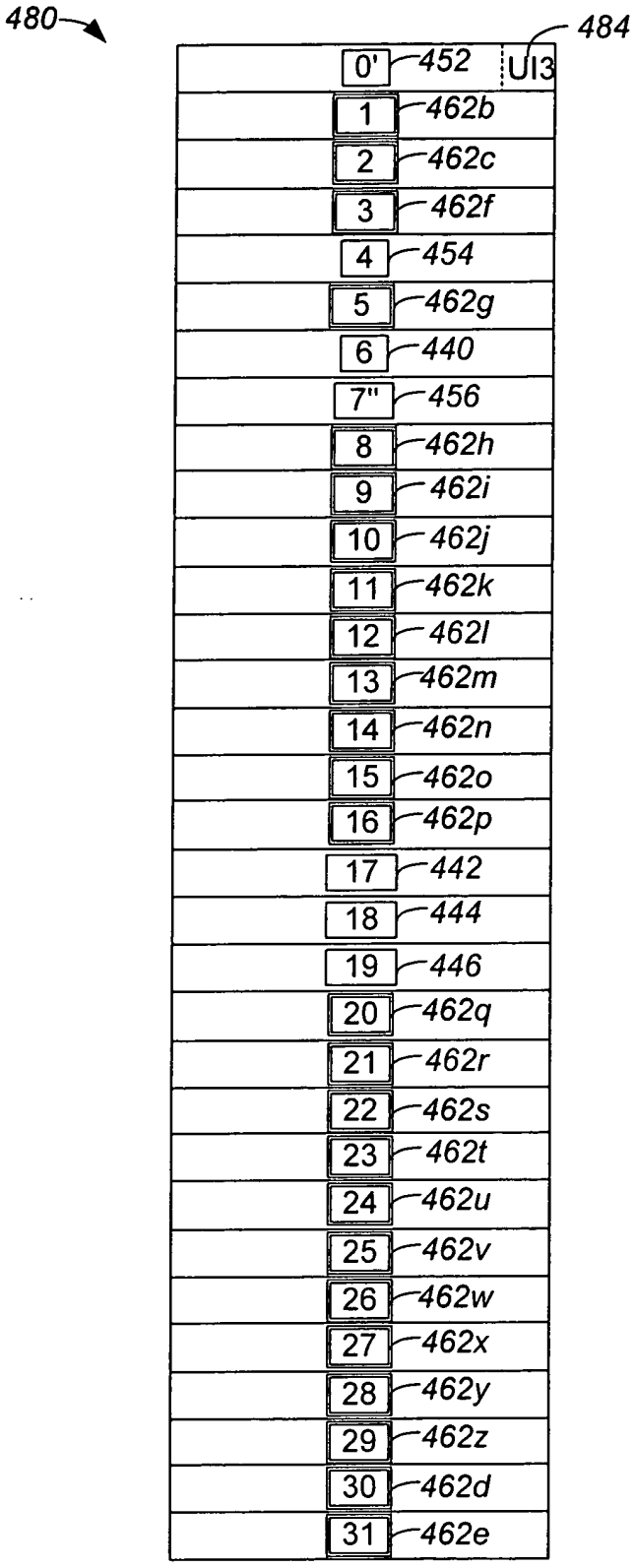
480
484
0'
452
UI3
1
462b
2
462c
3
462f
4
454
5
462g
6
440
7"
456
8
462h
9
462i
10
462j
11
462k
12
462l
13
462m
14
462n
15
462o
16
462p
17
442
18
444
19
446
20
462q
21
462r
22
462s
23
462t
24
462u
25
462v
26
462w
27
462x
28
462y
29
462z
30
462d
31
462e

Fig. 4c

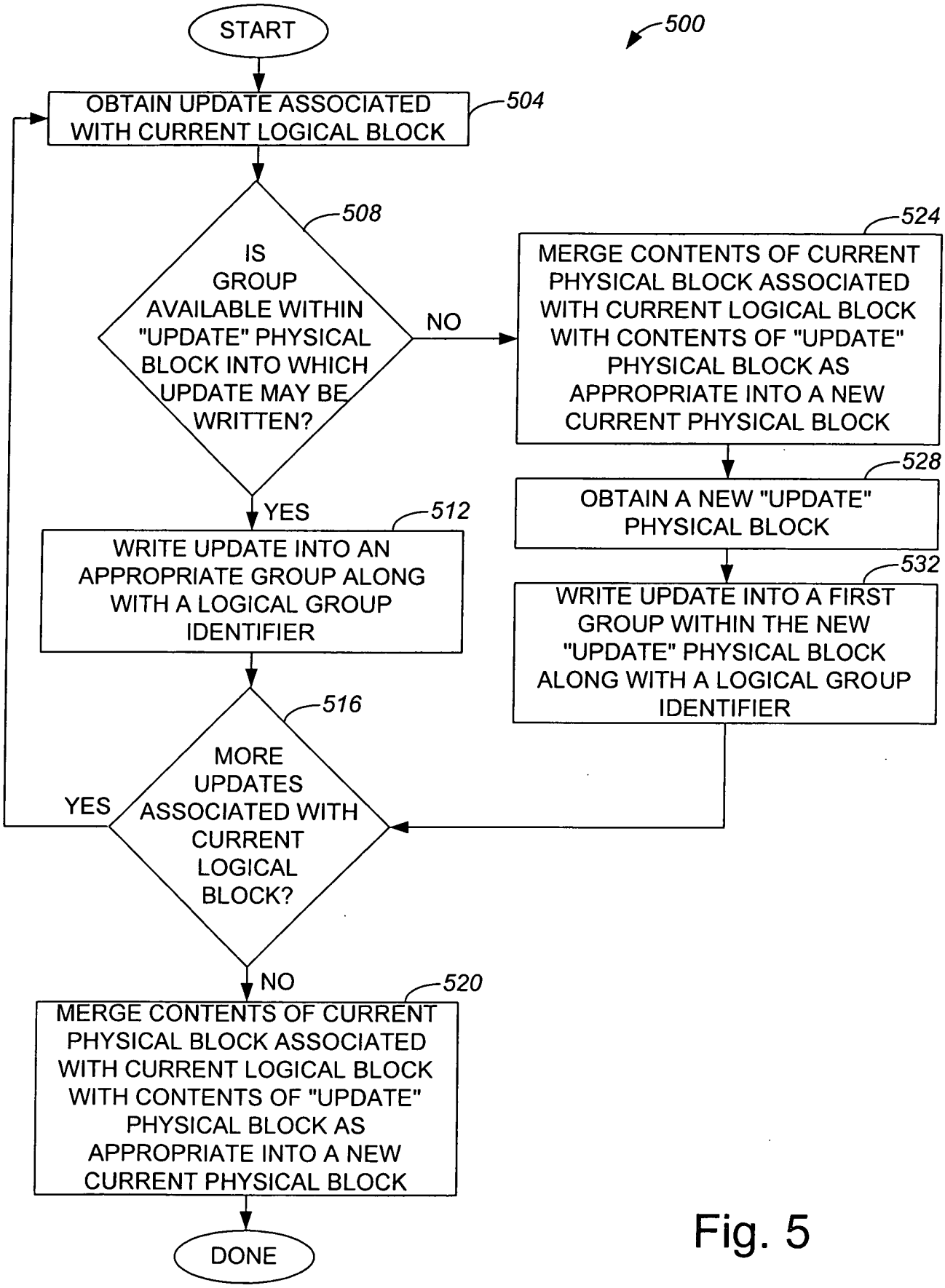
START
500
OBTAIN UPDATE ASSOCIATED WITH CURRENT LOGICAL BLOCK
504
IS GROUP AVAILABLE WITHIN "UPDATE" PHYSICAL BLOCK INTO WHICH UPDATE MAY BE WRITTEN?
508
NO
YES
MERGE CONTENTS OF CURRENT PHYSICAL BLOCK ASSOCIATED WITH CURRENT LOGICAL BLOCK WITH CONTENTS OF "UPDATE" PHYSICAL BLOCK AS APPROPRIATE INTO A NEW CURRENT PHYSICAL BLOCK
524
OBTAIN A NEW "UPDATE" PHYSICAL BLOCK
528
WRITE UPDATE INTO A FIRST GROUP WITHIN THE NEW "UPDATE" PHYSICAL BLOCK ALONG WITH A LOGICAL GROUP IDENTIFIER
532
WRITE UPDATE INTO AN APPROPRIATE GROUP ALONG WITH A LOGICAL GROUP IDENTIFIER
512
MORE UPDATES ASSOCIATED WITH CURRENT LOGICAL BLOCK?
516
YES
NO
MERGE CONTENTS OF CURRENT PHYSICAL BLOCK ASSOCIATED WITH CURRENT LOGICAL BLOCK WITH CONTENTS OF "UPDATE" PHYSICAL BLOCK AS APPROPRIATE INTO A NEW CURRENT PHYSICAL BLOCK
520
DONE

Fig. 5

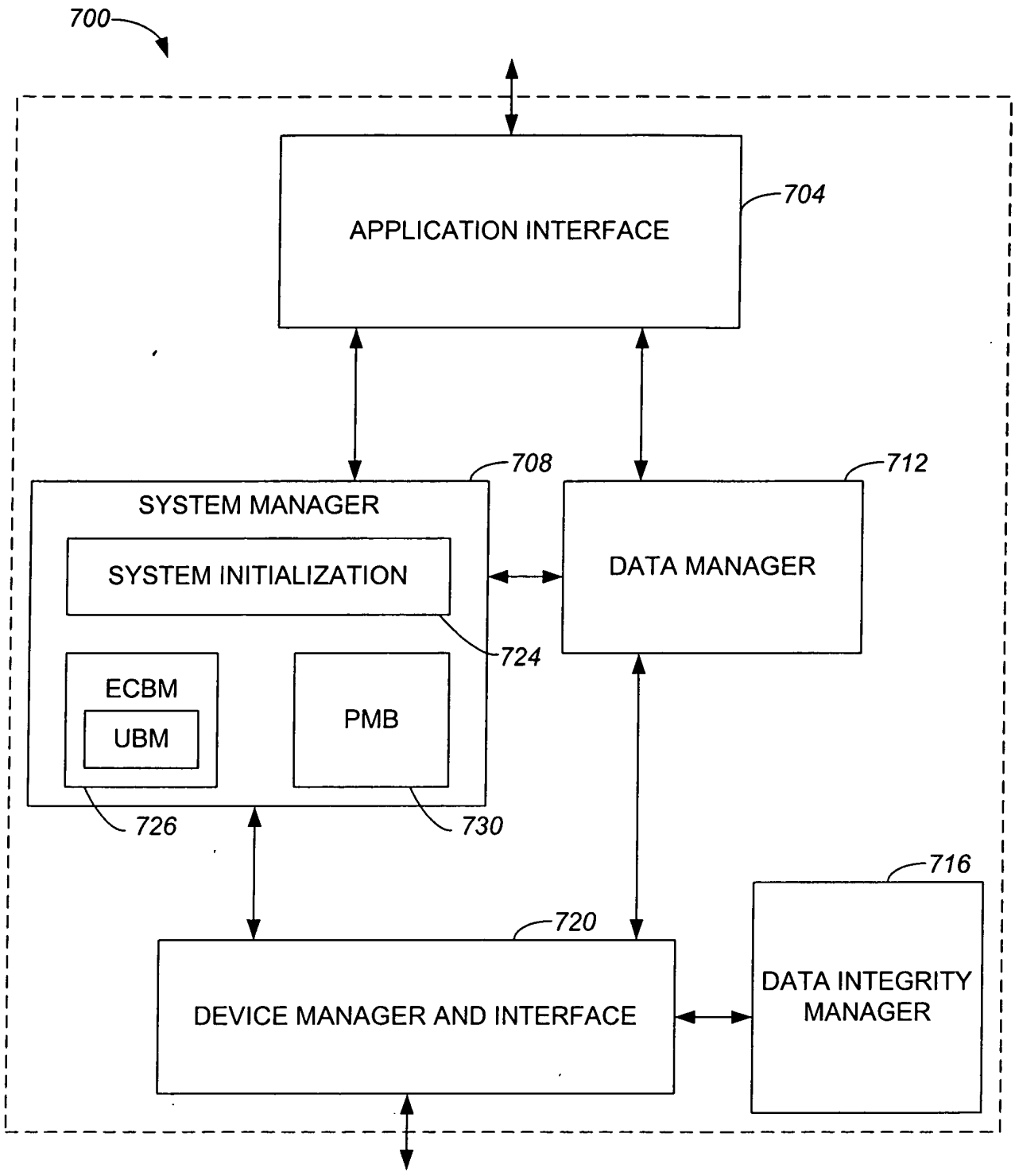
700
APPLICATION INTERFACE
704
SYSTEM MANAGER
708
SYSTEM INITIALIZATION
724
ECBM
UBM
726
PMB
730
DATA MANAGER
712
716
720
DEVICE MANAGER AND INTERFACE
DATA INTEGRITY MANAGER

Fig. 6